

What Is Claimed Is:

1. A DNA construct, which comprises a DNA molecule of Seq. ID No. 1 or a DNA molecule which is at least 40% homologous thereto, or a fragment thereof, wherein said DNA molecule is under control of a heterologous neuro-specific promoter.

2. The DNA construct of claim 1, which is contained within a vector.

3. The DNA construct of claim 1, which is contained by a viron.

4. The DNA construct of claim 1, wherein said DNA molecule has Seq. ID No. 1.

5. A host cell transformed with the DNA construct of claim 1.

6. The host cell line of claim 5, which is a neuronal cell.

7. A transgenic non-human animal, all of whose germ and somatic cells comprises the DNA molecule of Seq. ID No. 1 or a DNA molecule which is at least 40% homologous thereto.

8. The transgenic non-human animal of claim 7, wherein the DNA molecule contained in each germ and somatic cell has Seq. ID No. 1.

9. The transgenic non-human animal of claim 7, wherein the protein coded for by said DNA molecule is overexpressed in the brain of the animal.

10. An *in vitro* method for screening a candidate drug that is potentially useful for the treatment or prevention of Alzheimer's disease,

neuroectodermal tumors, malignant astrocytomas, and glioblastomas, which comprises

- (a) contacting a candidate drug with the host cell line of claim 5, and
- (b) detecting at least one of the following:

- (i) the suppression or prevention of expression of the protein coded for by the DNA construct;
- (ii) the increased degradation of the protein coded for by the DNA construct; or
- (iii) the reduction of frequency of at least one of neuritic sprouting, nerve cell death, degenerating neurons, neurofibrillary tangles, or irregular swollen neurites and axons in the host;

due to the drug candidate compared to a control cell line which has not contacted the candidate drug.

11. The method of claim 10, wherein said protein has Seq. ID No. 2.

12. The method of claim 10, wherein said protein is over-expressed by said host cell.

13. The method of claim 10, wherein said cell is a neuronal cell.

14. An *in vivo* method for screening a candidate drug that is potentially useful for the treatment or prevention of Alzheimer's disease, neuroectodermal tumors, malignant astrocytomas, and glioblastomas, which comprises

- (a) administering a candidate drug to the transgenic animal of claim 7,

and

- (b) detecting at least one of the following:

- (i) the suppression or prevention of expression of the protein coded for by the DNA construct contained by said animal;

- (ii) the increased degradation of the protein coded for by the DNA construct contained by said animal; or
- (iii) the reduction of frequency of at least one of neuritic sprouting, nerve cell death, degenerating neurons, neurofibrillary tangles, or irregular swollen neurites and axons in the host;

due to the drug candidate compared to a control animal which has not received the candidate drug.

15. The method of claim 14, wherein the DNA construct contained by said animal has Seq. ID No. 1.

16. The method of claim 14, wherein the protein coded for by the DNA construct contained by said animal is over-expressed in the brain of said animal.

17. An antisense oligonucleotide which is complementary to an NTP mRNA sequence corresponding to nucleotides 150-1139 of Seq. ID No. 1.

18. The antisense oligonucleotide of claim 17, which is a 15 to 40-mer.

19. The antisense oligonucleotide of claim 17, wherein said antisense oligonucleotide is selected from the group consisting of Seq ID Nos. 9 to 11.

20. The antisense oligonucleotide of claim 17, which is deoxyribonucleic acid.

21. The antisense oligonucleotide of claim 17, which is a deoxyribonucleic acid phosphorothioate.

22. The antisense oligonucleotide of claim 17, which is a derivative of a deoxyribonucleic acid or a deoxyribonucleic acid phosphorothioate.

23. A pharmaceutical composition comprising the antisense oligonucleotide of claim 17 and a pharmaceutically acceptable carrier.

5 24. A ribozyme comprising a target sequence which is complementary to an NTP mRNA sequence corresponding to nucleotides 150-1139 of Seq. ID No. 1.

25. A pharmaceutical composition comprising the ribozyme of claim 24 and a pharmaceutically acceptable carrier.

10 26. An oligodeoxynucleotide that forms triple stranded regions with the a region of AD7c-NTP coding nucleic acid and having the sequence 3'X5'-L-5'X3', wherein X comprises an AD7c-NTP nucleic acid sequence corresponding to nucleotides 150-1139 of Seq. ID No. 1, and wherein L represents an oligonucleotide linker or a bond.

15 27. A pharmaceutical composition comprising the oligodeoxynucleotide of claim 26 and a pharmaceutically acceptable carrier.

20 28. An oligodeoxynucleotide that forms triple stranded regions with the a region of AD7c-NTP coding nucleic acid and having the sequence 5'X3'-L-3'X5', wherein X comprises an AD7c-NTP nucleic acid sequence corresponding to nucleotides 150-1139 of Seq. ID No. 1, and wherein L represents an oligonucleotide linker or a bond.

29. A pharmaceutical composition comprising the oligodeoxynucleotide of claim 28 and a pharmaceutically acceptable carrier.

0096467.002001

30. A ribonucleotide external guide nucleic acid molecule, comprising, a 10-mer nucleotide sequence corresponding to nucleotides 150-1139 of Seq. ID No. 1 fused to a 3'NCCA nucleotide sequence, wherein N is a purine.

31. The ribonucleotide external guide nucleic acid molecule of claim 30 which is selected from the group consisting of any one of Seq. ID Nos. 12 to 14.

32. A pharmaceutical composition comprising the ribonucleotide of claim 30 and a pharmaceutically acceptable carrier.

33. A method for to treat or prevent dementias of the Alzheimer's type of neuronal degeneration; or to treat or prevent neuroectodermal tumors, malignant astrocytomas, or glioblastomas, comprising administering to an animal in need thereof an antisense oligonucleotide, a ribozyme, a triple helix-forming oligonucleotide or an ribonucleotide external guide sequence of any one of claims 17, 24, 26, 28, or 30.

34. The method of claim 32, wherein said antisense oligonucleotide, ribozyme, triple helix-forming oligonucleotide or ribonucleotide external guide sequence is administered to said animal as part of a pharmaceutically acceptable carrier.